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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/666,252	09/22/2003	Kazuhiro Hirahara	0170-1016P	9516
2292 7590 07/09/2007 BIRCH STEWART KOLASCH & BIRCH PO BOX 747 FALLS CHURCH, VA 22040-0747			EXAMINER HYUN, PAUL SANG HWA	
			ART UNIT 1743	PAPER NUMBER
			NOTIFICATION DATE 07/09/2007	DELIVERY MODE ELECTRONIC

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

mailroom@bskb.com

**Office Action Summary**

Application No.

10/666,252

Applicant(s)

HIRAHARA ET AL.

Examiner

Paul S. Hyun

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 04 May 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-3 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-3 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                                | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                       | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

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## DETAILED ACTION

### REMARKS

The R.C.E. submitted by Applicants has been acknowledged. Currently claims 1-3 are pending.

#### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claim 1 is rejected under 35 U.S.C. 103(a) as being unpatentable over Barnes et al. (US 4,688,935) in view of Huber (US 4,989,976), Vestal (US 4,958,529), Kruishoop (US 3,975,947), and Carnahan (US 5,723,861).

Barnes et al. disclose an analyzer adapted to analyze the purity of organometallic compounds (see line 58, col. 1-line 6, col. 2). Barnes et al. disclose that an analyzer of such configuration is well known in the art. The analyzer comprises a sample container for holding a sample comprising organometallic compounds and impurities, a nebulizer, a carrier gas source, and a passageway that feeds the vaporized sample and the carrier gas to an ICP emission spectrometer. However, Barnes et al. do not disclose the analyzer in detail. Specifically, Barnes et al. do not disclose the claimed mass flow controllers (liquid and gas), the claimed in-line monitor, or the claimed gas cylinder.

In regards to the liquid mass flow controller, Huber discloses a device for controllably supplying a sample liquid to a nebulizer. The device comprises a control

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device 46 that controls the speed of a peristaltic pump 48 that feeds the sample liquid to the nebulizer (see lines 50-54, col. 5). In light of the teachings of Huber, it would have been obvious to one of ordinary skill in the art to provide the apparatus disclosed by Barnes et al. with a liquid flow controller to provide a means that optimizes the rate of sample fed into the nebulizer.

In regards to the gas mass flow controller, Vestal discloses an analytical apparatus for analyzing liquid samples (see Fig. 3). The apparatus comprises a nebulizer 16, and a carrier gas source in fluid communication with the nebulizer via a conduit 33 comprising a flow meter 40, wherein the flow meter controls the flow rate of the carrier gas introduced into the nebulizer. In light of the teachings of Vestal, it would have been obvious to one of ordinary skill in the art to provide the apparatus disclosed by Barnes et al. with a carrier gas flow meter to provide a means that optimizes the amount of carrier gas fed into the nebulizer.

In regards to the in-line monitor, Kruishoop discloses an apparatus for analyzing fluid samples (see line 50, col. 1-line 37, col. 2). The apparatus comprises a calibration means for ensuring that proper amount of the sample is supplied to the analyzer. The reference discloses that when the amount of substances supplied to the detector is maintained constant, a faster and better system can be obtained. The calibration means comprises a second detector that measures the amount to sample delivered to the analyzer. In light of the disclosure of Kruishoop, it would have been obvious to one of ordinary skill in the art to provide the apparatus disclosed by Barnes et al. with a second

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detector that measures the amount of the sample that is fed to the ICP emission spectrometer to optimize the efficiency and accuracy of the apparatus.

In regards to the gas cylinder, Carnahan discloses an analyzer comprising a calibration device 20 situated downstream of the sample flow for calibrating a spectrometer. The calibration device comprises multiple cylinders filled with standard gas, and a flow sensor for controlling the flow of the standard gas fed into the spectrometer (see Fig. 2). In light of the teachings of Carnahan, it would have been obvious to one of ordinary skill in the art to provide the apparatus disclosed by Barnes et al. with a calibration device comprising gas cylinders and a flow sensor to provide a means for calibrating the ICP emission spectrometer.

Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over Barnes et al. in view of Huber, Vestal, Kruishoop, and Carnahan as applied to claim 1, and further in view of Mitsumaki et al. (US 4,696,183).

Neither Barnes et al., Huber, Vestal, Kruishoop, nor Carnahan disclose a plurality of gas cylinders, each cylinder having a separate passageway, and each passageway comprising a flow controller.

Mitsumaki et al. disclose an analysis system comprising a plurality of chambers 67 and 68, each chamber having standard gas therein for calibrating a detector. Each chamber is connected to the detector via an individual conduit (see Fig. 1). It would have been obvious to one of ordinary skill in the art to provide an individual passageway

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for each of the gas cylinder of the modified Barnes et al. apparatus so that the same passageway is not used for the transport of different calibration gases..

Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Barnes et al. in view of Huber, Vestal, Kruishoop, and Carnahan as applied to claim 1, and further in view of Ness et al. (US 6,027,890).

Neither Barnes et al., Huber, Vestal, Kruishoop, nor Carnahan disclose an IR absorption cell.

However, Ness et al. disclose that the wavelength of IR absorption bands are characteristic of specific types of chemical bonds and IR spectroscopy is generally most useful for identification of organic and organometallic molecules (see lines 15-21, col. 61). In light of the disclosure of Ness et al., it would have been obvious to one of ordinary skill in the art to use an IR detector as the in-line monitor of the modified Barnes et al. apparatus since organometallic compounds are easily detected using IR absorption.

### ***Response to Arguments***

Applicant's arguments with respect to the claims have been considered but are moot in view of the new grounds of rejection. The amendments changed the scope of the claims and necessitated new grounds of rejection.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Paul S. Hyun whose telephone number is (571)-272-8559. The examiner can normally be reached on Monday-Friday 8AM-4:30PM.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jill Warden can be reached on (571)-272-1267. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

PSH  
7/2/07

  
Jill Warden  
Supervisory Patent Examiner  
Technology Center 170